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(54) LIQUID CRYSTAL DISPLAY DEVICE.

 **Abstract**

Machine Translation

Human Translation

1 The present invention relates to the liquid crystal display device (LCD:LIQUID CRYSTAL DISPLAY), and the small spacer without the big spacer and the modulus of elasticity in compression having the spacer of 2 kind that is, the modulus of elasticity in compression (about 300-600kg / mm²) having the different size and characteristic is sprayed between upper and lower part substrate in which the transparent oxide conductive and alignment layer are formed and the big spacer as described above is formed than the small spacer with about 2-10%. In that way by case of having the modulus of elasticity in compression which the problem that could be caused in case of having the conventionally fixed modulus of elasticity in compression or using the spacer without the elasticity at all is fixed for exemple, the extent of being compacted being changed according to a pressure and in case it does not have the point or the compressibility in which it is difficult for the glass interval holding of being minute, it is fixed to the particle diameter, the cell gap is fixed, being maintained but the elasticity being penuriously unreasonably decreased and the stress being embraced and the cell gap being again transformed into and improving a problem etc. in the temperature increment the active circuit element at the TFT LCD is damaged it can improve with the prime cost reduction effect, and the process repeatability and the liquid crystal display device in which the minute cell gap control is possible can be realized.

 **Representative Drawing(s)**

Fig. 2

 **Description**

2 [Title of invention]

- 3 Liquid crystal display device.
- 4 [The simple description of the drawing]
- 5 The cross-sectional view which and the second (A) the second (B) drawing shows the spacer coating state of liquid crystal display device and structure of a device in the present invention.
- 6 This content did not give mention of the technical content since being the main part disclosure gun.

Scope of Claims

Claim[1] :

- 7 The liquid crystal display device, wherein it is made of the respective formed transparent oxide conductive in surface on the upper plate and lower plate, the respective formed alignment layer on the transparent oxide and the small spacer, and the small spacer does not have the big spacer and the modulus of elasticity in compression having the formed modulus of elasticity in compression between faced upper and lower part substrate formec way.

Claim[2] :

- 8 The liquid crystal display device of claim 1, wherein in a spacer, the spacer which is small in right and left out a spacer is coated onto based on the big spacer.

Claim[3] :

- 9 The liquid crystal display device of claim 1, wherein in the big spacer having the modulus of elasticity in compression the spacer diameter is formed than the small spacer without the modulus of elasticity in compression with about 10%.

Claim[4] :

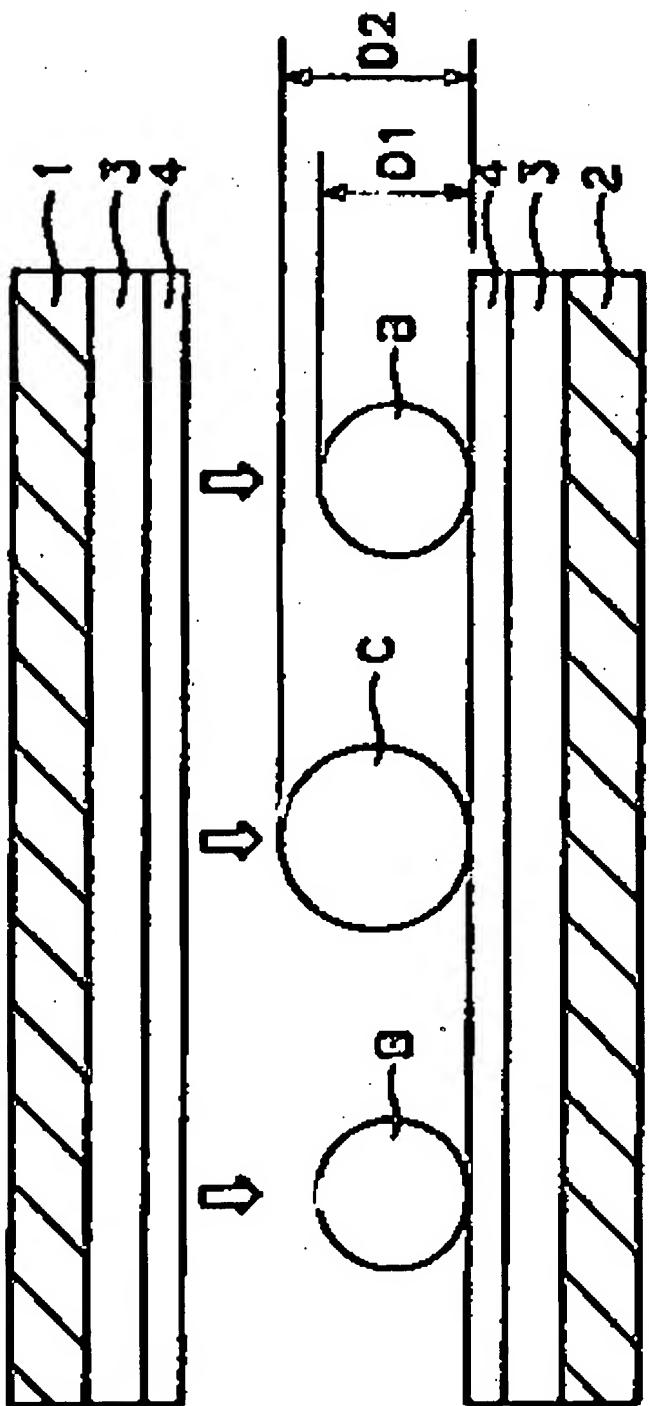
- 10 The liquid crystal display device of claim 3, wherein the modulus of elasticity in compression of the big spacer described above is with about 300-600kg / mm².

Claim[5] :

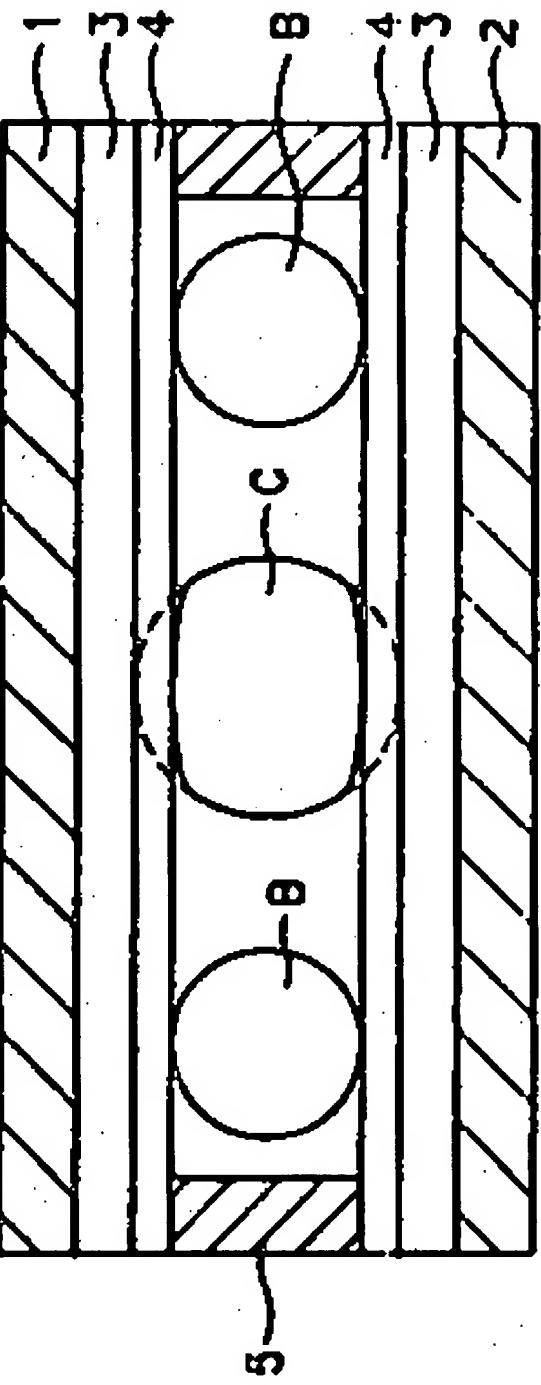
- 11 The liquid crystal display device of claim 3, wherein a spacer nearly does not have the spacer of the polymer which the distribution of the particle diameter is big and the modulus of elasticity in compression is big and placed system and elasticity but it sprinkles the spacer of the silica system in which the distribution of the particle dia very good at the constant rate after mixing.

Claim[6] :

- 12 1: the liquid crystal display device, wherein it is scattered to the rate of 3-10 after mixing.
- 13 ※ list of reference: it discloses with the initial application contents.



(A)



(B)